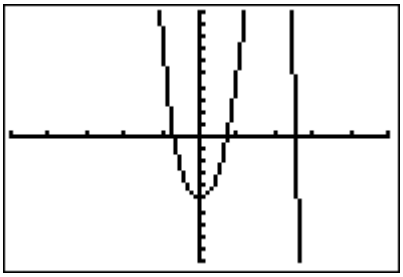
Name_____ Date_____

291 Ch 7 Test Review

For #s 1 & 2, answer the following questions:

a. Is the function odd or even?
b. Describe the end behavior.
c. State the number of real zeros.

#1



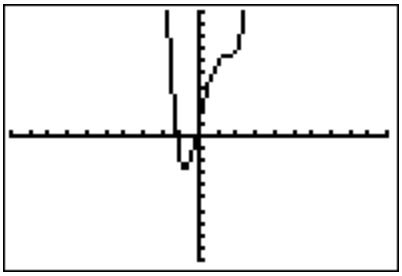
1. a._____

b. As $x \to +\infty$, then $f(x) \to$_____

As $x \to -\infty$, then $f(x) \to$_____

c._____

#2



2. a._____

b. As $x \to +\infty$, then $f(x) \to$_____

As $x \to -\infty$, then $f(x) \to$_____

c._____

For #s 3 and 4, calculate the real zeros and the relative max and min.

3. $y = x^3 - 6x - 9$ Zeros_____ Max_____ Min_____

4. $y = x^4 - 3x^3 + 7x + 1$ Zeros_____ Max_____ Min_____

Solve using quadratic techniques.

5. $x^3 - 8 = 0$

6. $x^{2/3} - 9x^{1/3} + 20 = 0$

7. What would be the degree of an equation with the following roots?_____
   2, 4, $\sqrt{2}$
8. Write the equation._____

List all of the possible rational roots for the following equations, then solve completely.

9. $f(x) = x^4 + 5x^3 + 15x^2 + 19x + 8$

10. $f(x) = 2x^4 – 9x^3 + 2x^2 + 21x – 10$

Given: $f(x) = x^3$ and $g(x) = x – 2$ and $h(x) = 2x^3 + 4x - 8$

11. Find $[f \circ g](x)$.

12. Find $[g \circ f](x)$.

Given: $f(x) = x^3$ and $g(x) = x - 2$ and $h(x) = 2x^3 + 4x - 8$

13. Find $(f + h)(x)$.

14. Find $(h - g)(x)$.

16. Find $(f \times h)(x)$.

Given f = {(1,2) (3, 4) (5, 6) (7, 8)} g = {(3, 5) (7, 4) (6, 2) (8, 1)}

17. Find $[f \circ g]$.

18. Find $[g \circ f]$.

Find the inverse of the following.

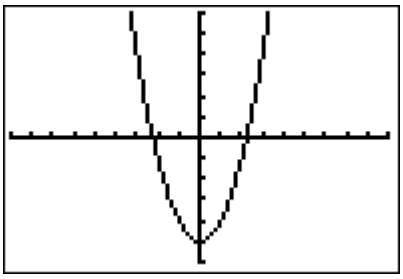
19. $f(x) = \frac{1}{2}x + 6$

20. $f(x) = \frac{2x-4}{7}$

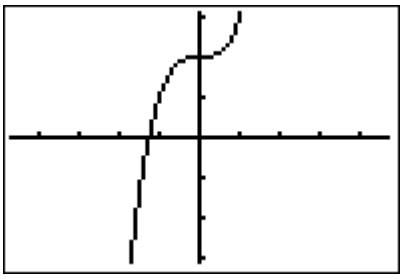
21. Use composition of functions to show that f(x) and $f^{-1}(x)$ from #19 are in fact inverses.

Sketch the inverse of the following.

22. $y = x^2 - 5$

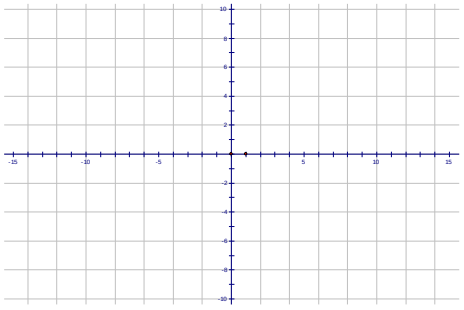


23. $y = x^3 + 2$

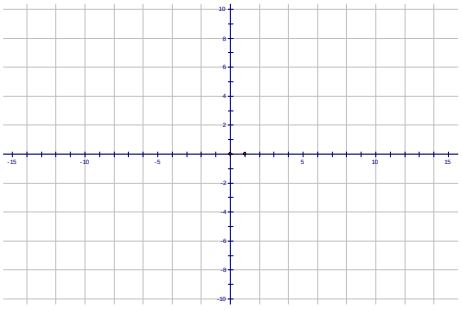


Graph the following. Use a table of values.

24. $y = \sqrt{3x + 6}$

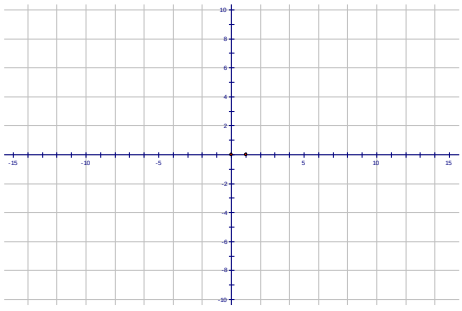


25. $y > -\sqrt{x + 1}$



Sketch the graph of the following polynomials (use the maximum number of turning points).

26. An odd function with a degree of 5, a negative leading coefficient, and 2 imaginary roots



27. An even function with a degree of 6, 4 imaginary roots, and a positive leading coefficient